



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute Form 1449A/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

Sheet **1** of **14****Complete if Known**

| | |
|------------------------|----------------------------|
| Application Number | 10/759,985 |
| Filing Date | January 16, 2004 |
| First Named Inventor | Schinazi <i>et al.</i> |
| Group Art Unit | 1623 |
| Examiner | Crane, Lawrence E. |
| Attorney Docket Number | 18085.105326 EMU 133 CON 5 |

4742181 1.DOC

U.S. PATENT DOCUMENTS

| Examiner Initials * | Cite No. ¹ | U.S. Patent Document | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pgs, Clmns, Lns, Where Relevant Passages/Relevant Figs Appear |
|------------------------|--------------------------|----------------------|-------------------------|--|--|---|
| | | Number | Kind Code (if known) | | | |
| | AA | 3,116,282 | A | Hunter | 12-31-1963 | |
| | AB | 3,553,192 | A | Gauri | 01-05-1971 | |
| | AC | 3,817,982 | A | Verheyden <i>et al.</i> | 06-18-1974 | |
| | AD | 4,000,137 | A | Dvonch <i>et al.</i> | 12-28-1976 | |
| | AE | 4,336,381 | A | Nagata <i>et al.</i> | 06-22-1982 | |
| | AF | 4,788,181 | A | Driscoll <i>et al.</i> | 11-29-1988 | |
| | AG | 4,861,759 | A | Hiroaki <i>et al.</i> | 09-05-1989 | |
| | AH | 4,879,277 | A | Mitsuya <i>et al.</i> | 11-07-1989 | |
| | AI | 4,900,828 | A | Belica <i>et al.</i> | 11-07-1989 | |
| | AJ | 4,916,122 | A | Chu <i>et al.</i> | 02-13-1999 | |
| | AK | 4,963,533 | A | de Clercq <i>et al.</i> | 04-10-1990 | |
| | AL | 4,963,662 | A | Matthes <i>et al.</i> | 10-16-1990 | |
| | AM | 4,968,674 | A | Taniyama <i>et al.</i> | 10-16-1990 | |
| | AN | 5,011,774 | A | Farina <i>et al.</i> | 11-06-1990 | |
| | AO | 5,041,449 | A | Belleau <i>et al.</i> | 04-30-1991 | |
| | AP | 5,047,407 | A | Belleau <i>et al.</i> | 08-20-1991 | |
| | AQ | 5,059,690 | A | Zahler <i>et al.</i> | 09-10-1991 | |
| | AR | 5,071,983 | A | Koszalka <i>et al.</i> | 10-22-1991 | |
| | AS | 5,089,500 | A | Daluge | 02-18-1992 | |
| | AT | 5,151,426 | A | Belleau <i>et al.</i> | 09-29-1992 | |
| | AU | 5,179,104 | A | Chu <i>et al.</i> | 01-12-1993 | |
| | AV | 5,185,437 | A | Koszalka <i>et al.</i> | 02-09-1993 | |
| | AW | 5,204,466 | A | Liotta <i>et al.</i> | 04-20-1993 | |
| | AX | 5,210,085 | A | Liotta <i>et al.</i> | 05-11-1993 | |
| | AY | 5,215,971 | A | Datema <i>et al.</i> | 06-01-1993 | |
| | AZ | 5,233,041 | A | Bray <i>et al.</i> | 08-03-1993 | |
| | AAA | 5,234,913 | A | Furman, Jr. <i>et al.</i> | 08-10-1993 | |
| | AAB | 5,241,069 | A | Vince <i>et al.</i> | 08-31-1993 | |
| | AAC | 5,246,924 | A | Fox <i>et al.</i> | 09-21-1993 | |
| | AAD | 5,248,776 | A | Chu <i>et al.</i> | 09-28-1993 | |
| | AAE | 5,270,315 | A | Belleau <i>et al.</i> | 12-14-1993 | |

Examiner
SignatureDate
Considered

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → ☐

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|---|---|----|----|--------------------------|----------------------------|
| Submitted for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Complete if Known | |
| | | | | Application Number | 10/759,985 |
| | | | | Filing Date | January 16, 2004 |
| | | | | First Named Inventor | Schinazi <i>et al.</i> |
| | | | | Group Art Unit | 1623 |
| | | | | Examiner Name | Crane, Lawrence E. |
| Sheet | 2 | of | 14 | Attorney Docket Number | 18085.105326 EMU 133 CON 5 |

4742181 1.DOC

| U.S. PATENT DOCUMENTS | | | | | | |
|------------------------|--------------------------|----------------------|-------------------------|--|--|---|
| Examiner Initials * | Cite No. ¹ | U.S. Patent Document | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pgs, Clmns, Lns, Where Relevant Passages/Relevant Figs Appear |
| | | Number | Kind Code (if known) | | | |
| | BA | 5,276,151 | A | Liotta et al. | 01-04-1994 | |
| | BB | 5,329,008 | A | Partridge et al. | 07-12-1994 | |
| | BC | 5,409,906 | A | Datema et al. | 04-25-1995 | |
| | BD | 5,432,165 | A | Adair et al. | 07-11-1995 | |
| | BE | 5,444,063 | A | Schinazi et al. | 08-22-1995 | |
| | BF | 5,446,029 | A | Eriksson et al. | 08-29-1995 | |
| | BG | 5,466,806 | A | Belleau et al. | 11-14-1995 | |
| | BH | 5,496,935 | A | Matthes et al. | 03-05-1996 | |
| | BI | 5,521,161 | A | Malley et al. | 05-28-1996 | |
| | BJ | 5,561,120 | A | Lin et al. | 10-01-1996 | |
| | BK | 5,567,688 | A | Chu et al. | 10-22-1996 | |
| | BL | 5,604,209 | A | Ubasawa et al. | 02-18-1997 | |
| | BM | 5,627,160 | A | Lin et al. | 05-06-1997 | |
| | BN | 5,631,239 | A | Lin et al. | 05-20-1997 | |
| | BO | 5,703,058 | A | Schinazi et al. | 12-30-1997 | |
| | BP | 5,756,478 | A | Cheng et al. | 05-26-1998 | |
| | BQ | 5,869,461 | A | Cheng et al. | 02-09-1999 | |
| | BR | 5,905,070 | A | Schinazi et al. | 05-18-1999 | |
| | BS | 6,232,300 | B1 | Schinazi et al. | 05-15-2001 | |
| | BT | 6,348,587 | B1 | Schinazi et al. | 02-19-2002 | |
| | BU | 6,391,859 | B1 | Schinazi et al. | 05-21-2002 | |
| | BV | 2002/0198173 | A1 | Schinazi et al. | 12-26-2002 | |
| | BW | 6,680,303 | B2 | Schinazi et al. | 01-20-2004 | |

| FOREIGN PATENT DOCUMENTS | | | | | | | | |
|--------------------------|--------------------------|-------------------------|-----------|--------------------------------------|--|--|--|-------------------|
| Examiner Initials * | Cite No. ¹ | Foreign Patent Document | | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T ⁶ |
| | | Office ³ | Number | Kind Code ² (if known) | | | | |
| | BX | DE | 1 620 047 | | Merck | 03-17-1970 | | |
| | BY | EP | 0 206 497 | B1 | Wellcome Foundation LTD | 07-20-1994 | | |
| | BZ | EP | 0 217 580 | A2 | Wellcome Foundation LTD | 04-08-1987 | | |
| | BAA | EP | 0 285 884 | A2 | Bristol-Myers Company | 10-12-1988 | | |
| | BAB | EP | 0 337 713 | B1 | BioChem Pharma | 10-18-1995 | | |
| | BAC | EP | 0 352 248 | A1 | Medivir Aktieboiag | 01-24-1990 | | |

| | |
|-----------------------|--------------------|
| Examiner Signature | Date Considered |
|-----------------------|--------------------|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → ☐

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|---|---|----|----|-------------------------------|-----------------------------------|
| Submitted for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Complete if Known | |
| | | | | Application Number | 10/759,985 |
| | | | | Filing Date | January 16, 2004 |
| | | | | First Named Inventor | Schinazi <i>et al.</i> |
| | | | | Group Art Unit | 1623 |
| | | | | Examiner Name | Crane, Lawrence E. |
| | | | | Attorney Docket Number | 18085.105326 EMU 133 CON 5 |
| Sheet | 3 | of | 14 | | |

4742181 1.DOC

| FOREIGN PATENT DOCUMENTS | | | | | | | | |
|--------------------------|--------------------------|-------------------------|-----------|--------------------------------------|--|--|--|--------|
| Examiner Initials * | Cite No. ¹ | Foreign Patent Document | | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T 6 |
| | | Office ³ | Number | Kind Code ² (if known) | | | | |
| | CA | EP | 0 375 329 | A2 | Wellcome Foundation LTD | 06-27-1990 | | |
| | CB | EP | 0 382 526 | A2 | IAF BioChem Int'l | 08-16-1990 | | |
| | CC | EP | 0 409 227 | A2 | Akad Wiss DDR | 01-23-1991 | | |
| | CD | EP | 0 433 898 | A2 | Abbott Laboratories | 06-26-1991 | | |
| | CE | EP | 0 494 119 | A1 | IAF BioChem Int'l | 07-08-1992 | | |
| | CF | EP | 0 515 144 | A1 | BioChem Pharma | 11-25-1992 | | |
| | CG | EP | 0 515 156 | B1 | BioChem Pharma | 11-25-1992 | | |
| | CH | EP | 0 515 157 | B1 | BioChem Pharma | 09-03-1997 | | |
| | CI | EP | 0 519 464 | B1 | Ajinimoto | 12-23-1992 | | |
| | CJ | EP | 0 526 253 | A1 | BioChem Pharma | 02-03-1993 | | |
| | CK | JP | 7-109221 | | Wellcome Foundation Ltd | 04-25-1995 | | |
| | CL | NL | 8,901,258 | | Stichting Rega | 12-17-1990 | | y |
| | CM | WO | 88/07532 | A1 | Holmes, et al. | 10-06-1988 | | |
| | CN | WO | 88/08001 | A1 | Aktiebolaget Astra | 10-20-1988 | | |
| | CO | WO | 90/12023 | A1 | Walker, et al. | 10-18-1990 | | |
| | CP | WO | 91/06554 | A1 | Nycomed | 05-16-1991 | | |
| | CQ | WO | 91/09124 | A1 | Biotech AU PTY. LTD | 06-27-1991 | | |
| | CR | WO | 91/11186 | A1 | Emory University | 08-08-1991 | | |
| | CS | WO | 91/16333 | A1 | Southern Res Inst | 10-31-1991 | | |
| | CT | WO | 91/17159 | A1 | IAF Biochem Int'l, Inc. | 11-14-1991 | | |
| | CU | WO | 91/19727 | A1 | Sloan Kettering Inst | 12-26-1991 | | |
| | CV | WO | 92/06102 | A1 | Medivir AB | 04-16-1992 | | |
| | CW | WO | 92/08727 | A1 | Consiglio Naz. Delle Ricerche | 05-29-1992 | | |
| | CX | WO | 92/10496 | A1 | UGA Research Found. | 06-25-1992 | | |
| | CY | WO | 92/10497 | A1 | UGA Res. Found.; Emory U. | 06-25-1992 | | |
| | CZ | WO | 92/14729 | A1 | Emory University | 09-03-1992 | | |
| | CAA | WO | 92/14743 | A2 | Emory University | 09-03-1992 | | |
| | CAB | WO | 92/15308 | A1 | Wellcome Foundation LTD | 09-17-1992 | | |
| | CAC | WO | 92/18517 | A1 | Yale University, et al. | 10-29-1992 | | |
| | CAD | WO | 92/21676 | A1 | Glaxo Group Limited | 12-10-1992 | | |
| | CAE | WO | 93/23021 | A2 | Wellcome Foundation LTD | 11-25-1993 | | |
| | CAF | WO | 94/09793 | A1 | Emory University | 05-11-1994 | | |
| | CAG | WO | 94/14456 | A1 | Biochem Pharma | 07-07-1994 | | |

| | |
|-----------------------|--------------------|
| Examiner Signature | Date Considered |
|-----------------------|--------------------|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → ☐

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|---|---|----|----|--------------------------|----------------------------|
| Submitted for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Complete if Known | |
| | | | | Application Number | 10/759,985 |
| | | | | Filing Date | January 16, 2004 |
| | | | | First Named Inventor | Schinazi <i>et al.</i> |
| | | | | Group Art Unit | 1623 |
| | | | | Examiner Name | Crane, Lawrence E. |
| Sheet | 4 | of | 14 | Attorney Docket Number | 18085.105326 EMU 133 CON 5 |

4742181_1.DOC

| FOREIGN PATENT DOCUMENTS | | | | | | | | |
|--------------------------|--------------------------|-------------------------|----------|--------------------------------------|--|--|--|--------|
| Examiner Initials * | Cite No. ¹ | Foreign Patent Document | | | Name of Patentee or Applicant of Cited Document | Date of Publication of Cited Document MM-DD-YYYY | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T 6 |
| | | Office ³ | Number | Kind Code ² (if known) | | | | |
| | DA | WO | 94/14802 | A1 | Biochem Pharma | 07-07-1994 | | |
| | DB | WO | 94/14831 | A1 | University of Alberta | 07-07-1994 | | |
| | DC | WO | 94/27590 | A1 | Gov't of United States | 12-08-1994 | | |
| | DD | WO | 94/27616 | A1 | Yale University | 12-08-1994 | | |
| | DE | WO | 95/07086 | A1 | Emory University | 03-16-1995 | | |
| | DF | WO | 95/07287 | A1 | Ctr. Nat. de la Recherche Sci. | 03-16-1995 | | |
| | DG | WO | 95/18137 | A1 | Genta Incorporated | 07-06-1995 | | |
| | DH | WO | 95/20595 | A1 | UGA Research Found. | 08-03-1995 | | |
| | DI | WO | 95/21183 | A1 | Acid (Canada) Inc. | 08-10-1995 | | |
| | DJ | WO | 96/22778 | A1 | Emory University | 08-01-1996 | | |

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | | | | | | |
|---|--------------------------|---|--|--|--|--|--|--------|
| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | | | | | | T 6 |
| | DK | Database WPI, Week 8748, Derwent Publications Ltd., London, GB; AN 87-338135 for JP 62-242624 A to Asahi Glass 10-23-1987; [98-338135], Abstract. | | | | | | |
| | DL | EPO Search Report for SN. 96 902772, July 26, 1999. | | | | | | |
| | DM | ABOBO <i>et al.</i> , "Pharmacokinetics of 2', 3'-Dideoxy-5-fluoro-3'-thiacytidine in Rats," <i>J. Pharmaceutical Sciences</i> , 83(1), 96-99 (January 1994). | | | | | | |
| | DN | Van AERSCHOT <i>et al.</i> , "3'-Fluoro-2',c'-dideoxy-5-chlorouridine: Most Selective Anti-HIV-1 Agent among a Series of New 2'- and 3'-Fluorinated 2',3'-Fluorinated 2',3'-Dideoxynucleoside Analogs," <i>J. Med. Chem.</i> , 32(8)1743-1749 (1989). | | | | | | |
| | DO | Van AERSCHOT <i>et al.</i> , "Synthesis and Anti-HIV Evaluation of 2',3'-Dideoxy-5-chloropyrimidine Analogues: Reduced Toxicity of 5-Chlorinated 2', 3'-Dideoxynucleosides", <i>J. Med. Chem.</i> , 33(6), 1833-1839 (1990). | | | | | | |
| | DP | AGROFOGLIO <i>et al.</i> , "Synthesis of Carbocyclic Nucleosides," <i>Tetrahedron</i> , 50(36):10611-10670 (1994). | | | | | | |
| | DQ | AJMERA, S., <i>et al.</i> , "Synthesis and Biological Activity of 5-Fluoro-2',3'-Dideoxy-3'-fluorouridine and its 5'-phosphate," <i>J. Med. Chem.</i> , 27(1): 11-14 (1984). | | | | | | |
| | DR | ASSELIN <i>et al.</i> , "Synthesis and physiochemical properties of oligonucleotides built with either .alpha.-L or .beta.-L nucleotides units and covalently linked to an acridine derivative," <i>Nucl. Acids Res.</i> , 19(15):4067-4074 (1991). | | | | | | |
| | DS | BALZARINI <i>et al.</i> , "2',3'-Didehydro-2',3'-dideoxy-5-chlorocytidine Is A Selective Anti-Retrovirus Agent," <i>Biochem. Biophys. Res. Comm.</i> , 164(3), 1190-1197 (November 15, 1989). | | | | | | |

| | | | |
|-----------------------|--|--------------------|--|
| Examiner Signature | | Date Considered | |
|-----------------------|--|--------------------|--|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → ☐

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|---|---|----|----|--------------------------|----------------------------|
| Submitted for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Complete if Known | |
| | | | | Application Number | 10/759,985 |
| | | | | Filing Date | January 16, 2004 |
| | | | | First Named Inventor | Schinazi <i>et al.</i> |
| | | | | Group Art Unit | 1623 |
| | | | | Examiner Name | Crane, Lawrence E. |
| Sheet | 5 | of | 14 | Attorney Docket Number | 18085.105326 EMU 133 CON 5 |

4742181 1.DOC

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | |
|---|-----------------------|---|--------|
| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T 6 |
| | EA | BALZARINI <i>et al.</i> , "5-Chloro-substituted Derivatives of 2', 3'-Didehydro-2', 3'-dideoxyuridine, 3-Fluoro-2', 3'-dideoxyuridine and 3'-Azido-2', 3'-dideoxyuridine as Anti-HIV Agents," <i>Biochem. Pharmacology</i> , 38(6), 869-874 (1989). | |
| | EB | BALZARINI, J., <i>et al.</i> , "Potent and Selective Anti-HTLV-III/LAV Activity of 2',3'-Dideoxycytidine, the 2',3'-Unsaturated Derivative of 2',3'-Dideoxycytidine," <i>Biochemical and Biophysical Research Communications</i> , 140(2):735-742 (1986). | |
| | EC | BEACH, J. W., <i>et al.</i> , "Synthesis of Enantiomerically Pure (2'R,5'S)-(1)-[2-hydroxymethyl)-oxatiolan-5-yl] Cytosine as a Potent Antiviral Agent Against Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV)," <i>J. Org. Chem.</i> , 57:2217-2219 (1992). | |
| | ED | BELLEAU, B., <i>et al.</i> , "Design and Activity of a Novel Class of Nucleoside Analogs Effective Against HIV-1," International Conference on AIDS, Montreal, Quebec, Canada, Jun. 4-9, 1989, p. 516. | |
| | EE | BELLEAU, B., <i>et al.</i> , Chem. Abst. 118(17):169533s (1993). | |
| | EF | BELLEAU, B., <i>et al.</i> , "A Novel Class of 1,3-Oxathiolane Nucleoside Analogs Having Potent Anti-HIV Activity," <i>Bioorgan. Med. Chem. Lett.</i> , 3(8):1723-1728 (1993) | |
| | EG | BIRON <i>et al.</i> , "Anti-HIV Activity of the Combination of Didanosine and Hydroxyurea in HIV-1 Infected Individuals," <i>J. AIDS and Human Retrovirology</i> , 10(1):36-40 (August 1995). | |
| | EH | BORTHWICK, <i>et al.</i> , "Synthesis and Enzymatic Resolution of Carbocyclic 2'-Ara-Fluoro-Guanosine: A Potent New Anti-Herpetic Agent," <i>J. Chem. Soc. Commun.</i> , 10:656-658 (1988). | |
| | EI | BOUFFARD, D.Y., <i>et al.</i> , "Kinetic Studies on 2'2'-Difluorodeoxycytidine(Gemcitabine) with Purified Human Deoxycytidine Kinase and Cytidine Deaminase," <i>Biochem. Pharmacol.</i> , 45(9):1857-1861 (1993). | |
| | EJ | CARTER <i>et al.</i> , "Activities of (-)-Carbovir and 3'-Azido-3'-Deoxythymidine Against Human Immunodeficiency Virus In Vitro," <i>Antimicrobial Agents and Chemotherapy</i> , 34(6):1297-1300 (1990). | |
| | EK | CHANG, C.-N., <i>et al.</i> , "Biochemical Pharmacology of (+) and (-)-2',3'-Dideoxy-3'-Thiacytidine as Anti-Hepatitis B Virus Agents," <i>J. Biol. Chem.</i> , 267(3):22414-22420 (1992). | |
| | EL | CHANG, Chien-Neng, <i>et al.</i> , "Deoxycytidine Deaminase-resistant Stereoisomer Is the Active Form of (+/-)-2',3'-Dideoxy-3'-thiacytidine in the Inhibition of Hepatitis B Virus Replication," <i>J. Biological Chemistry</i> , 267(20):13938-13942 (1992). | |
| | EM | CHANG, Chungming, <i>et al.</i> , "Production of Hepatitis B Virus In Vitro by Transient Expression of Cloned HBV DNA in a Hepatoma Cell Line," <i>EMBO Journal</i> , 6(3):675-680 (1987). | |
| | EN | CHEN, Chin-Ho, <i>et al.</i> , "Delayed Cytotoxicity and Selective Loss of Mitochondrial DNA in Cells Treated with the Anti-Human Immunodeficiency Virus Compound 2',3'-Dideoxycytidine," <i>J. Biological Chemistry</i> , 264(20):11934-11937 (1989). | |

| | |
|--------------------|-----------------|
| Examiner Signature | Date Considered |
|--------------------|-----------------|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → ☐

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|---|---|----|----|--------------------------|----------------------------|
| Submitted for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Complete if Known | |
| | | | | Application Number | 10/759,985 |
| | | | | Filing Date | January 16, 2004 |
| | | | | First Named Inventor | Schinazi <i>et al.</i> |
| | | | | Group Art Unit | 1623 |
| | | | | Examiner Name | Crane, Lawrence E. |
| Sheet | 6 | of | 14 | Attorney Docket Number | 18085.105326 EMU 133 CON 5 |

4742181 1.DOC

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS | | | |
|---|-----------------------|--|--------|
| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T 6 |
| | FA | CHOI <i>et al.</i> , "In Situ Complexation Directs the Stereochemistry of N-Glycosylation in the Synthesis of Oxathiolanyl and Dioxalanyl Nucleoside Analogues," <i>J. Am. Chem. Soc.</i> , 113:9377-9379 (1991). | |
| | FB | CHOI <i>et al.</i> , "Synthesis, Anti-Human Immunodeficiency Virus, and Anti-Hepatitis B Virus Activity of Pyrimidine Oxathiolane Nucleosides," <i>Biorganic & Medicinal Chemistry Letters</i> , 3(4):693-696 (1993). | |
| | FC | CHOTTINER, E.G., "Cloning and Expression of Human Deoxycytidine Kinase cDNA," <i>Proc. Natl. Acad. Sci. USA</i> , 88:1531-1535 (1991). | |
| | FD | CHU, C.K., <i>et al.</i> , "An Efficient Total Synthesis of 3'-Azido-3'-Deoxythymidine (AZT) and 3'-Azido-2',3'-Dideoxyuridine (AZDDU, CS-87) from D-Mannitol," <i>Tetrahedron Lett.</i> , 29(42):5349-5352 (1988). | |
| | FE | CHU <i>et al.</i> , "Comparative Activity of 2',3'-Saturated and Unsaturated Pyrimidine and Purine Nucleosides Against Human Immunodeficiency Virus Type 1 in Peripheral Blood Mononuclear Cells," <i>Biochem. Pharm.</i> , 37(19):3543-3548 (1988). | |
| | FF | CHU <i>et al.</i> , "Structure-Activity Relationships of Pyrimidine Nucleosides as Antiviral Agents for Human Immunodeficiency Virus Type 1 in Peripheral Blood Mononuclear Cells," <i>J. Med. Chem.</i> , 32:612-617 (1989). | |
| | FG | CHU <i>et al.</i> , "Use of 2'-Fluoro-5-Methyl-beta.-L-Arabinofuranosyluracil as a Novel Antiviral Agent for Hepatitis B Virus and Epstein-Barr Virus," <i>Antimicrob. Agents Chemother.</i> , 39(4):979-981 (1995). | |
| | FH | COATES <i>et al.</i> , "The Separated Enantiomers of 2'-Deoxy-3'-thiacytidine(BCH-189) both Inhibit Human Immunodeficiency Virus Replication in vitro," <i>Antimicrob. Agents Chemother.</i> , 36(1):202-205 (January 1992). | |
| | FI | COE, P.L. <i>et al.</i> , "The synthesis of Difluoro and Trifluoro Analogs of Pyrimidine Deoxyribonucleosides: A Novel Approach Using Elemental Fluorine," <i>J. Fluorine Chem.</i> , 69(1):19-24 (1994). | |
| | FJ | CONDREAY <i>et al.</i> , "Evaluation of the Potent Anti-Hepatitis B Virus Agent (-) cis-5-Fluoro-1[2-(Hydroxymethyl)-1,3-Oxathiolan-5-yl] Cytosine in a Novel In Vivo Model," <i>Antimicrobial Agents and Chemotherapy</i> , 38(3):616-619 (1994). | |
| | FL | CRETTON, E., <i>et al.</i> , "Catabolism of 3'-Azido-3'-Deoxythymidine in Hepatocytes and Liver Microsomes, with Evidence of Formation of 3'-Amino-3'-Deoxythymidine, a Highly Toxic Catabolite for Human Bone Marrow Cells," <i>Molecular Pharmacology</i> , 39:258-266 (1991). | |
| | FM | CRETTON, E., <i>et al.</i> , "Pharmokinetics of 3'-Azido-3'-Dexoythymidine and its Catabolites and Interactions with Probenecid in Rhesus Monkeys," <i>Antimicrobial Agents and Chemotherapy</i> , 35(5):801-807 (1991). | |
| | FN | DAVISSON <i>et al.</i> , "Synthesis of Nucleotide 5'-Diphosphates from 5'-O-Tosyl Nucleosides," <i>J. Org. Chem.</i> , 52:1794-1801 (1987). | |
| | FO | Di BISCEGLIE, A.M., <i>et al.</i> , "Hepatocellular Carcinoma," NIH Conference, <i>Annals of Internal Medicine</i> ; 108:390-401 (1988) (Summary of meeting held December 3, 1986). | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → ☐

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|---|---|----|----|--------------------------|----------------------------|
| Submitted for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Complete if Known | |
| | | | | Application Number | 10/759,985 |
| | | | | Filing Date | January 16, 2004 |
| | | | | First Named Inventor | Schinazi <i>et al.</i> |
| | | | | Group Art Unit | 1623 |
| | | | | Examiner Name | Crane, Lawrence E. |
| Sheet | 7 | of | 14 | Attorney Docket Number | 18085.105326 EMU 133 CON 5 |

4742181_1.DOC

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS | | | |
|---|-----------------------|--|-----|
| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T 6 |
| | GA | DOONG, Shin-Lian, <i>et al.</i> , "Inhibition of the Replication of Hepatitis B Virus in vitro by 2',3'-Dideoxy-3'-Thiacytidine and Related Analogues," <i>Proc. Natl. Acad. Sci. USA</i> , 88:8495-8499 (October 1991). | |
| | GC | EMORY University, "Letter in re Opposition to EP 0 337 713," August 22, 1997; only p.1 supplied. | |
| | GD | FEORINO <i>et al.</i> , "Prevention of Activation of HIV-1 by Antiviral Agents in OM-10.1 Cells," <i>Antiviral Agents & Chemotherapy</i> , 4(1):55-63 (1993). | |
| | GE | FEORINO <i>et al.</i> , <i>Chem. Abst.</i> 118(19):182829n (May 10, 1993). | |
| | GF | FRICK <i>et al.</i> , "Pharmacokinetics, Oral Bioavailability, and Metabolic Disposition in Rats of (-) cis-5-Fluoro-1-[2-(Hydroxymethyl)-1, 3-Oxathiolan-5-yl] Cytosine, a Nucleoside Analog Active Against Human Immunodeficiency Virus and Hepatitis B Virus" <i>Antimicrobial Agents and Chemotherapy</i> , 37(11), 2285-2292 (November 1993). | |
| | GG | FRICK <i>et al.</i> , "Pharmacokinetics, Oral Bioavailability, and Metabolic Disposition in Mice and Cynomolgus Monkeys of (2'R,5'S)-cis-5-Fluoro-1-[2-(Hydroxymethyl)-1, 3-Oxathiolan-5-yl] Cytosine, an Agent Active Against Human Immunodeficiency Virus and Hepatitis B Virus," <i>Antimicrobial Agents and Chemotherapy</i> , 38(12) 2722-2729 (December 1994). | |
| | GH | FUJIMORI <i>et al.</i> , "A Convenient and Stereoselective of 2'-Deoxy-Beta-L-Ribonucleosides," <i>Nucleosides & Nucleotides</i> , 11(2-4):341-349 (1992). | |
| | GI | FURMAN <i>et al.</i> , "The Anti-Hepatitis B Virus Activities, Cytotoxicities, and Anabolic Profiles of the (-) and (+) Enantiomers of cis-5 Fluoro-1-[2-(Hydroxymethyl)-1,3-Oxthiolane-5-yl]Cytosine," <i>Antimicrobial Agents and Chemotherapy</i> , 36(12):2686-2692 (December 1992). | |
| | GJ | GANEM, D., <i>et al.</i> , "The Molecular Biology of the Hepatitis B Viruses," <i>Ann. Rev. Biochem.</i> , 56:651-693 (1987). | |
| | GK | GENU-DELLAC <i>et al.</i> , "3'-substituted thymine Alpha-L-nucleoside derivatives as potential antiviral agents: synthesis and biological evaluation," <i>Antiviral Chem. & Chemother.</i> , 2(2):83-92 (1991). | |
| | GL | GENU-DELLAC <i>et al.</i> , "Synthesis of New 2'-Deoxy-3'-Substituted-Alpha-L-Threo-Pentofuranonucleosides of Thymine as Potential Antiviral Agents," <i>Tetrahedron Letters</i> , 32(1):79-82 (January 1991). | |
| | GM | GOSSELIN, "Enantiomeric 2',3'-Deoxycytidine Derivatives are Potent Human Immunodeficiency Virus Inhibitors in Cell Cultures," <i>C. R. Acad. Sci. Paris Sci. Vie.</i> , 317:85-89 (January 1994). | |
| | GN | GU <i>et al.</i> , "Identification of a Mutation at Codon 65 in the IKKK Motif of Reverse Transcriptase That Encodes Human Immunodeficiency Virus Resistant to 2', 3'-Dideoxycytidine and 2', 3'-Dideoxy-3'-Thiacytidine," <i>Antimicrobial Agents and Chemotherapy</i> , 38(2), 275-281 (February 1994). | |
| | GO | GUMINA <i>et al.</i> , "Synthesis and Potent Anti-HIV Activity of L-3'-Fluoro-2'-c3'-Unsaturated Cytidine," <i>Organic Letters</i> , 3(26):4177-4180 (2001); ACS Web publ. date: Dec. 4, 2001. | |
| | GP | HERDEWIJN <i>et al.</i> , "Resolution of Aristeromycin Enantiomers," <i>J. Med. Chem.</i> , 28:1385-1386 (1985). | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → ☐

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|---|---|----|----|--------------------------|----------------------------|
| Submitted for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Complete if Known | |
| | | | | Application Number | 10/759,985 |
| | | | | Filing Date | January 16, 2004 |
| | | | | First Named Inventor | Schinazi <i>et al.</i> |
| | | | | Group Art Unit | 1623 |
| | | | | Examiner Name | Crane, Lawrence E. |
| Sheet | 8 | of | 14 | Attorney Docket Number | 18085.105326 EMU 133 CON 5 |

4742181 1.DOC

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | |
|---|-----------------------|---|--------|
| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T 6 |
| | HA | HOARD and OTT, "Conversion of Mono- and Oligodeoxyribonucleotides to 5'-Triphosphates," <i>J. Am. Chem. Soc.</i> , 87(8):1785-1788 (April 20, 1965). | |
| | HB | HOLY, "[61] 2'-Deoxy-L-Uridine Total Synthesis of a Uracil 2'-Deoxynucleosides from a Sugar 2-Aminooxazoline Through a 2,2'-Anhydronucleoside Intermediate," <i>Nucl. Acid. Chem.</i> , 347-353 (Townsend and Tipson, Editors, John Wiley & Sons, New York, Chichester, Brisbane, Toronto). | |
| | HC | HOLY, "Nucleic Acid Components and Their Analogues. CLIII. Preparation of 2'-Deoxy-L-Ribonucleosides of the Pyrimidine Series," <i>Coll. Czechoslov. Chem. Commun.</i> , 37:4072-4087 (1972). | |
| | HD | HOONG <i>et al.</i> , "Enzyme-Mediated Enantioselective Preparation of Pure Enantiomers of the Antiviral Agent 2', 3'-Dideoxy-5-fluoro-3'-thiacytidine (FTC) and Related Compounds," <i>J. Organic Chem.</i> , 57(21), 5563-5565 (October 9, 1992). | |
| | HE | HOONG <i>et al.</i> , <i>Chem. Abst.</i> 117(19):192246p (1992). | |
| | HF | HORWITZ, J.P., <i>et al.</i> , "Nucleosides. VIII. Synthesis of 2',3'-Unsaturated Pyrimidine Nucleosides from Oxetane Derivatives," <i>Tetrahedron Letters</i> , 1964(38):2725-2727 (1964). | |
| | HG | HRONOWSKI, L.J.J., <i>et al.</i> , "Synthesis of Cyclopentane Analogs of 5-Fluorouracil Nucleosides," <i>Canadian J. Chem.</i> , 70(4):1162-1169 (1992). | |
| | HH | HUTCHINSON, "New approaches to the synthesis of antiviral nucleosides," <i>Trends in Biotech.</i> , 8(12):348-353 (December 1990). | |
| | HI | IMAI <i>et al.</i> , "Studies on Phosphorylation IV. Selective Phosphorylation of the Primary Hydroxyl Group in Nucleosides," <i>J. Org. Chem.</i> , 34(6):1547-1550 (June 1969). | |
| | HJ | IZUTA, Shunje, <i>et al.</i> , "Inhibitory Effects of Various 3'-Dexoyribonucleotides on DNA Polymerase.alpha.2-primase from Developing Cherry Salmon (<i>Oncorhynchus masou</i>) Testes," <i>Nucleic Acids Symp. Ser.</i> 16, 1985, 241-244, XP002086626. | |
| | HK | JANSEN <i>et al.</i> , "High Capacity In Vitro Assessment of Anti-Hepatitis B Virus Compound Selectivity by a Virion-Specific Polymerase Chain Reaction Assay," <i>Antimicrobial Agents and Chemotherapy</i> , 37(3), 441-447 (March 1993). | |
| | HL | JANSEN <i>et al.</i> , <i>Chem. Abst.</i> 118(19):182688r (1993). | |
| | HM | JEONG <i>et al.</i> , "Structure-Activity Relationships of .beta.-D-(2S, 5R)- and .alpha.-D-(2S,5R)-1,3-Oxathiolanyl Nucleosides as Potential Anti-HIV Agents," <i>J. Med. Chem.</i> , 36(18), 2627-2638 (1993). | |
| | HN | JEONG, L., <i>et al.</i> , "Asymmetric Synthesis and Biological Evaluation of .beta.-L-(2R,5S)- and .alpha.-L-(2R,5R)-1,3-Oxathiolane-Pyrimidine and -Purine Nucleosides and Potential Anti-HIV Agents," <i>J. Med. Chem.</i> , 36(2):181-195 (January 22, 1993). | |
| | HO | KASSIANIDES, C., <i>et al.</i> , "Inhibition of Duck Hepatitis B Virus Replication by 2',3'-Dideoxycytidine," <i>Gastroenterology</i> , 97(5):1275-1280 (July-December 1989). | |
| | HP | KHWAJA, T.A., <i>et al.</i> , "Fluorinated Pyrimidines," <i>J. Med. Chem.</i> , 10(6):1066-1070 (November 1967). | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → ☐

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|---|---|----|----|--------------------------|----------------------------|
| Submitted for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Complete if Known | |
| | | | | Application Number | 10/759,985 |
| | | | | Filing Date | January 16, 2004 |
| | | | | First Named Inventor | Schinazi <i>et al.</i> |
| | | | | Group Art Unit | 1623 |
| | | | | Examiner Name | Crane, Lawrence E. |
| Sheet | 9 | of | 14 | Attorney Docket Number | 18085.105326 EMU 133 CON 5 |

4742181 1.DOC

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | |
|---|-----------------------|---|--------|
| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T 6 |
| | IA | KIM <i>et al.</i> , "Asymmetric Synthesis of 1,3-Dioxolane-Pyrimidine Nucleosides and heir Anti-HIV Activity," <i>J. Med. Chem.</i> , 35(11):1987-1995 (1992). | |
| | IB | KIM <i>et al.</i> , "1,3-Dioxolanylpurine Nucleosides (2R,4R) and (2R,4S) with Selective Anti-HIV-1 Activity in Human Lymphocytes," <i>J. Med. Chem.</i> , 36(1):30-37 (1993). | |
| | IC | KIM, <i>et al.</i> , "L-.beta.-(2S,4S)-L-.alpha.-(2S,4R)-Dioxolanyl Nucleosides as Potential Anti-HIV Agents: Asymmetric Synthesis and Structure-Activity Relationships," <i>J. Med. Chem.</i> , 36(5):519-528 (March 5, 1993). | |
| | ID | KIM <i>et al.</i> , "Potent Anti-HIV and Anti-HBV Activities of (-)-L-.beta.-Dioxolane-C and (+)-L-.beta.-Dioxolane-T and Their Asymmetric Syntheses," <i>Tetrahedron Lett.</i> , 33(46):6899-6902 (1992). | |
| | IE | KOSHIDA <i>et al.</i> , "Structure-Activity Relationships of Fluorinated Nucleoside Analogs and Their Synergistic Effect in Combination with Phosphonoformate Against Human Immunodeficiency Virus Type I," <i>Antimicrobial Agents and Chemotherapy</i> , 33(12):2083-2088 (December, 1989). | |
| | IF | KRENITSKY <i>et al.</i> , "An Enzymic Synthesis of Purine D-Arabinonucleosides," <i>Carbohydrate Research</i> , 97:139-146 (1981). | |
| | IG | KRENITSKY, T.A., <i>et al.</i> , "3'-Amino-2',3'-Dideoxyribunucleosides of Some Pyrimidines: Synthesis and Biological Activities," <i>J. Med. Chem.</i> , 26:891-895 (1983). | |
| | IH | KUKHANOVA <i>et al.</i> , "L- and D-Enantiomers of 2',3'-Dideoxycytidine 5'-Triphosphate Analogs as Substrates for Human DNA Polymerases," <i>J. Biol. Chem.</i> , 270(39):23056-23059 (September 29, 1995). | |
| | II | LEE, Bonita, <i>et al.</i> , "In Vitro and In Vivo Comparison of the Abilities of Purine and Pyrimidine 2',3'-Dideoxynucleosides To Inhibit Duck Hepadnavirus," <i>Antimicrobial Agents and Chemotherapy</i> , 33(3):336-339 (March 1989). | |
| | IJ | LIN <i>et al.</i> , "Antiviral Activity of 2',3'-Dideoxy-.beta.-L-5-fluorocytidine(.beta.-L-FddC) and 2',3'-Dideoxy-.beta.-L-cytidine (.beta.-L-ddC) Against Hepatitis B Virus and Human Immunodeficiency Virus Type 1 in Vitro," <i>Biochemical Pharmacology</i> , 47(2):171-174 (1994). | |
| | IK | LIN <i>et al.</i> , "Potent and Selective In Vitro Activity of 3'-Deoxythymidine-2-Ene-(3'-Deoxy-2',3'-Didehydrothymidine) Against Human Immunodeficiency Virus," <i>Biochem. Pharm.</i> , 36(17):2713-2718 (1987). | |
| | IL | LORI <i>et al.</i> , "Hydroxyurea as an Inhibitor of Human Immunodeficiency Virus-Type 1 Replication," <i>Science</i> , 266, 801-805 (4 Nov. 1994). | |
| | IM | MAHMOUDIAN <i>et al.</i> , "Enzymatic Production of Optically Pure (2'R-cis)-2'-deoxy-3'-thiacytidine (3TC, Lamivudine): A Potent Anti-HIV Agent," <i>Enzyme Microb. Technol.</i> , 15:749-755 (September 1993), published by the Glaxo Group Research. | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → ☐

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|---|----|----|----|--------------------------|----------------------------|
| Submitted for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Complete if Known | |
| | | | | Application Number | 10/759,985 |
| | | | | Filing Date | January 16, 2004 |
| | | | | First Named Inventor | Schinazi <i>et al.</i> |
| | | | | Group Art Unit | 1623 |
| | | | | Examiner Name | Crane, Lawrence E. |
| Sheet | 10 | of | 14 | Attorney Docket Number | 18085.105326 EMU 133 CON 5 |

4742181_1.DOC

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | |
|---|-----------------------|---|--------|
| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T 6 |
| | JA | MANSOUR <i>et al.</i> , "Anti-Human Immunodeficiency Virus and Anti-Hepatitis-B Virus Activities and Toxicities of the Enantiomers of 2'-Deoxy-3'-oxa-4'-thiocytidine and Their 5-Fluoro Analogues in Vitro," <i>J. Med. Chem.</i> , 38(1):1-4 (January 6, 1995). | |
| | JB | MANSOUR <i>et al.</i> , "Structure-Activity Relationships Among a New Class of Antiviral Heterosubstituted 2', 3'-Dideoxynucleoside Analogues," <i>Nucleosides & Nucleotides</i> , 14(3-5):627-635 (1995). | |
| | JC | MANSOUR <i>et al.</i> , <i>Chem. Abst.</i> 118(21):213450p (May 24, 1993). | |
| | JD | MANSURI <i>et al.</i> , "Preparation of the Geometric Isomers of DDC, DDA, D4C, and D4T as Potential Anti-HIV Agents," <i>Bioorgan. and Med. Chem. Lett.</i> , 1(1):65-68 (1991). | |
| | JE | MATHEZ <i>et al.</i> , "Infectious Amplification of Wild-Type Human Immunodeficiency Virus from Patients' Lymphocytes and Modulation by Reverse Transcriptase Inhibitors In Vitro," <i>Antimicrobial Agents and Chemotherapy</i> , 37(10), 2206-2111 (October 1993). | |
| | JF | MATTHES, E., <i>et al.</i> , "Potent Inhibition of Hepatitis B Virus Production In Vitro by Modified Pyrimidine Nucleosides," <i>Antimicrobial Agents and Chemotherapy</i> , 34(10):1986-1990 (October 1990). | |
| | JG | MILLER, R.H., <i>et al.</i> , "Common Evolutionary Origin of Hepatitis B Virus and Retroviruses," <i>Proc. Natl. Acad. Sci. USA</i> , 83:2531-2535 (April 1986). | |
| | JH | MITSUYA, H., <i>et al.</i> , "3'-Azido-3'-Deoxythymidine (BW A 509U): An Antiviral Agent that Inhibits the Infectivity and Cytopathic Effect of Human T-Lymphotropic Virus Type III/Lymphadenopathy-Associated Virus In Vitro," <i>Proc. Natl. Acad. Sci., USA</i> , 82:7096-7100 (October 1985). | |
| | JI | MITSUYA, H., <i>et al.</i> , "Molecular Targets for AIDS Therapy," <i>Science</i> , 249:1533-1544 (September 28, 1990). | |
| | JJ | MITSUYA, H., <i>et al.</i> , "Rapid in Vitro Systems for Assessing Activity of Agents Against HTLV-III/LAV," <i>AIDS: Modern Concepts and Therapeutic Challenges</i> , S. Broder, Ed. Marcel-Dekker, New York (1987), pp. 303-333 (Chapter 18). | |
| | JK | NASSAL, M., <i>et al.</i> , "Hepatitis B Virus Replication," <i>Trends in Microbiology</i> , 1(6):221-228 (September 1993). | |
| | JL | NORBECK, D., <i>et al.</i> , "A New 2',3'-Dideoxynucleoside Prototype with In Vitro Activity Against HIV," <i>Tetrahedron Lett.</i> , 30(46):6263-6266 (1989). | |
| | JM | OKABE, M., <i>et al.</i> , "Synthesis of the Dideoxynucleosides, ddC and CNT from Glutamic Acid, Ribonolactone, and Pyrimidine Bases," <i>J. Org. Chem.</i> , 53(20):4780-4786 (1988). | |
| | JN | ONETTO <i>et al.</i> , "In Vitro Biochemical Tests to Evaluate the Response to Therapy of Acute Leukemia with Cytosine Arabinoside or 5-AZA-2'-Deoxycytidine," <i>Semin. Oncol.</i> , 14(12)Suppl. 1:231-237 (March 1987). | |
| | JO | PAFF <i>et al.</i> , "Intracellular Metabolism of (-)- and (+)-cis-5-Fluoro-1-[2-(Hydroxymethyl)-1,3-Oxathiolan-5-yl] Cytosine in HepG2 Derivative 2.2.15 (Subclone P5A) Cells," <i>Antimicrobial Agents and Chemotherapy</i> , 38(6) 1230-1238 (1994). | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box ☐

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|---|----|----|----|--------------------------|----------------------------|
| Submitted for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Complete if Known | |
| | | | | Application Number | 10/759,985 |
| | | | | Filing Date | January 16, 2004 |
| | | | | First Named Inventor | Schinazi <i>et al.</i> |
| | | | | Group Art Unit | 1623 |
| | | | | Examiner Name | Crane, Lawrence E. |
| Sheet | 11 | of | 14 | Attorney Docket Number | 18085.105326 EMU 133 CON 5 |

4742181 1.DOC

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | |
|---|-----------------------|---|--------|
| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T 6 |
| | KA | PAI <i>et al.</i> , "Inhibition of Hepatitis B Virus by a Novel L-Nucleoside, 2'-Fluoro-5-Methyl-.beta.-L-Arabinofuranosyl Uracil," <i>Antimicrob. Agents and Chemother.</i> , 40(2):380-386 (February 1996). | |
| | KB | PAINTER <i>et al.</i> , <i>Chem. Abst.</i> 117(23):226298z (December 7, 1992). | |
| | KC | PAINTER <i>et al.</i> , <i>Chem. Abst.</i> 118(6):45750r (1992). | |
| | KD | PARKER <i>et al.</i> , "Mechanism of Inhibition of Human Immunodeficiency Virus Type 1 Reverse Transcriptase and Human DNA Polymerase .alpha., .beta.0 and .gamma. by the 5'-Triphosphates of Carbovir. 3'-Azdo-3'-deoxythymidine. 2',3'-Dideoxyguanosine, and 3'-Deoxythymidine," <i>J. Biological Chem.</i> , 208(3), 1754-1762 (January 25, 1991). | |
| | KE | PHILPOTT <i>et al.</i> , "Evaluation of 9-(2-phophonylmethoxyethyl) adenine therapy for feline immunodeficiency virus using a quantitative polymerase chain reaction," <i>Vet. Immunol. and Immunopathol.</i> , 35:155-166 (1992). | |
| | KF | PIRKLE and POCHANSKY, "Chiral Stationary Phases for the Direct LC Separation of Enantiomers," <i>Advances in Chromatography</i> , Giddings, J.C., Grushka, E., Brown, P.R., eds.: Marcel Dekker: New York, 1987; vol. 27, Chap. 3, pp. 73-127. | |
| | KG | RICHMAN, D. D., "The Toxicity of Azidothymidine (AZT) in the Treatment of Patients with AIDS and AIDS-Related Complex," <i>N. Eng. J. Med.</i> , 317(4):192-197 (July 23, 1987). | |
| | KH | ROBINS <i>et al.</i> , "Purine Nucleosides. XXIX. The Synthesis of 2'-Deoxy-L-adenosine and 2'-Deoxy-L-guanosine and Their Alpha Anomers," <i>J. Org. Chem.</i> , 87:636-639 (March 1970). | |
| | KI | Van ROEY <i>et al.</i> , "Absolute Configuration of the Antiviral Agent (-)-cis-5-Fluoro-1-[2-(Hydroxymethyl)-1,3-Oxathiolan-5-yl] Cytosine," <i>Antiviral Agents and Chemotherapy</i> , 4(6), 369-375 (1993). | |
| | KJ | SATSUMABAYASHI, S. <i>et al.</i> , "The Synthesis of 1,3-Oxathiolane-5-one Derivatives," <i>Bull. Chem. Soc. Japan</i> , 45:913-915 (March 1972). | |
| | KK | SCHINAZI, R.F., <i>et al.</i> , "Antiviral Drug Resistance Mutations in Human Immunodeficiency Virus Type 1 Reverse Transcriptase Occur in Specific RNA Structural Regions," <i>Antimicrobial Agents and Chemotherapy</i> , 38(2):268-274 (February 1994). | |
| | KL | SCHINAZI, R.F., <i>et al.</i> , "Characterization of Human Immunodeficiency Viruses Resistant to Oxathiolane-Cytosine Nucleosides," <i>Antimicrobial Agents and Chemotherapy</i> , 37(4):875-881 (April 1993). | |
| | KM | SCHINAZI, R.F., <i>et al.</i> , "Pure Nucleoside Enantiomers of .beta.-2',3'-Dideoxycytidine Analogs Are Selective Inhibitors of Hepatitis B Virus In Vitro," <i>Antimicrobial Agents and Chemotherapy</i> , 38(9):2172-2174 (Septmeber 1994). | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → ☐

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|---|----|----|----|--------------------------|----------------------------|
| Submitted for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Complete if Known | |
| | | | | Application Number | 10/759,985 |
| | | | | Filing Date | January 16, 2004 |
| | | | | First Named Inventor | Schinazi <i>et al.</i> |
| | | | | Group Art Unit | 1623 |
| | | | | Examiner Name | Crane, Lawrence E. |
| Sheet | 12 | of | 14 | Attorney Docket Number | 18085.105326 EMU 133 CON 5 |

4742181_1.DOC

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS | | | |
|---|-----------------------|---|-----|
| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T 6 |
| | LA | SCHINAZI, R.F., <i>et al.</i> , "Activities of the Four Optical Isomers of 2',3'-Dideoxy-3'-Thiacytidine (BCH-189) against Human Immunodeficiency Virus Type 1 in Human Lymphocytes," <i>Antimicrobial Agents and Chemotherapy</i> , 36(3):672-676 (March 1992). | |
| | LB | SCHINAZI, R.F., <i>et al.</i> , "Insights into HIV Chemotherapy," <i>AIDS Research and Human Retroviruses</i> 8(6):963-990 (1992). | |
| | LC | SCHINAZI, R.F., <i>et al.</i> , "Pharmacokinetics and Metabolism of Racemic 2',3'-Dideoxy-5-Fluoro-3'-Thiacytidine in Rhesus Monkeys," <i>Antimicrobial Agents and Chemotherapy</i> , 36(11):2432-2438 (November 1992). | |
| | LD | SCHINAZI, R.F., <i>et al.</i> , "Selective Inhibition of Human Immunodeficiency Viruses by Racemates and Enantiomers of cis-5-Fluoro-1-[2-(Hydroxymethyl)-1,3-Oxathiolan-5-yl]Cytosine," <i>Antimicrobial Agents and Chemotherapy</i> , 36(11):2423-2431 (November 1992). | |
| | LE | SCHINAZI, R.F., <i>et al.</i> , "Substrate Specificity of Escherichia Coli Thymidine Phosphorylase for Pyrimidine Nucleoside with an Anti-Human Immunodeficiency Virus Activity," <i>Biochemical Pharmacology</i> , 44(2):199-204 (1992). | |
| | LF | SECRIST <i>et al.</i> , "Resolution of Racemic Carbocyclic Analogues of Purine Nucleosides Through the Action of Adenosine Deaminase Antiviral Activity of the Carbocyclic 2'-Deoxyguanosine Enantiomers," <i>J. Med. Chem.</i> , 30:746-749 (1987). | |
| | LG | SELLS, M.A., <i>et al.</i> , "Production of Hepatitis B Virus Particles in Hep G2 Cells Transfected with Cloned Hepatitis B Virus DNA," <i>Proc. Natl. Acad. Sci. USA</i> , 84:1005-1009 (February 1987). | |
| | LH | SHEWACH <i>et al.</i> , "Affinity of the Antiviral Enantiomers of Oxathiolane Cytosine Nucleosides for Human 2'-Deoxycytidine Kinase," <i>Biochem. Pharmacology</i> , 45(7), 1540-1543 (1993). | |
| | LI | SHIGETA, Shiro <i>et al.</i> , "Comparative Inhibitory Effects of Nucleoside Analogs on Different Clinical Isolates of Human Cytomegalovirus In Vitro," <i>J. Infect. Dis.</i> , 163(2):270-275 (February 1991), XP002086627. | |
| | LJ | SIDDIQUI, M.A., <i>et al.</i> , "Chemistry and Anti-HIV Properties of 2'-Fluoro-2'-c3'-dideoxyarabinofuranosylpyrimidines," <i>J. Med. Chem.</i> , 35(12):2195-2201 (1992). | |
| | LK | SOUDEYNS, H., <i>et al.</i> , "Anti-Human Immunodeficiency Virus Type 1 Activity and In Vitro Toxicity of 2'-Deoxy-3'-Thiacytidine (BCH-189), a Novel Heterocyclic Nucleoside Analog," <i>Antimicrobial Agents and Chemotherapy</i> , 35(7):1386-1390 (July 1991). | |
| | LL | SPADARI <i>et al.</i> , "L-Thymidine Is Phosphorylated by Herpes Simplex Virus Type 1 Thymidine Kinase and Inhibits Viral Growth," <i>J. Med. Chem.</i> , 35(22):4214-4220 (1992). | |
| | LM | STERZYCKI, R.Z., <i>et al.</i> , "Synthesis and anti-HIV activity of several 2'-fluoro-containing pyrimidine nucleosides," <i>J. Med. Chem.</i> , 33(8):2150-2157 (1990). | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box ☐

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|---|----|----|----|--------------------------|----------------------------|
| Submitted for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Complete if Known | |
| | | | | Application Number | 10/759,985 |
| | | | | Filing Date | January 16, 2004 |
| | | | | First Named Inventor | Schinazi <i>et al.</i> |
| | | | | Group Art Unit | 1623 |
| | | | | Examiner Name | Crane, Lawrence E. |
| Sheet | 13 | of | 14 | Attorney Docket Number | 18085.105326 EMU 133 CON 5 |

4742181_1.DOC

| OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS | | | |
|---|-----------------------|--|--------|
| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T 6 |
| | MA | STORER, R., <i>et al.</i> , "The Resolution and Absolute Stereochemistry of the Enantiomeris of cis-1-[2-(Hydromethyl)]-1,3-Oxathiolan-5-yl]cytosine (BCH189): Equipotent Anti-HIV Agents," <i>Nucleosides & Nucleotides</i> , 12(2):225-236 (1993). | |
| | MB | SU <i>et al.</i> , "Nucleosides. 136. Synthesis and Antiviral Effects of Several 1-(2-Deoxy-2-Fluoro-B-D-Arabinofuranosyl)-5-Alyluracils. Some Structure-Activity Relationships," <i>J. Med. Chem.</i> , 29(1):151-154 (1986). | |
| | MC | SUREAU, C., <i>et al.</i> , "Production of Hepatitis B Virus by a Differential Human Hepatoma Cell Line after Transfection with Cloned Circular HBV DNA," <i>Cell</i> , 47:37-47 (1986). | |
| | MD | TANN <i>et al.</i> , "Fluorocarbohydrates in Synthesis. An Efficient Synthesis of 1-(2-Deoxy-2-Fluoro-B-D-Arabinofuranosyl)-5-iodouracil (B-FIAU) and 1-(2-Deoxy-2-Fluoro-B-D-Arabinofuranosyl)thymine (B-FMAU)," <i>J. Org. Chem.</i> , 50:3644-3647 (September 20, 1985). | |
| | ME | TISDALE <i>et al.</i> , "Rapid In Vitro Selection of Human Immunodeficiency Virus Type 1 Resistant to 3'-Thiacytidine Inhibitors Due to a Mutation in the YMDD Region of Reverse Transcriptase," <i>Proc. Nat. Acad. Sci. USA</i> , 90:5653-5656 (June 1993). | |
| | MF | TSURIMOTO, Toshiki, <i>et al.</i> , "Stable Expression and Replication of Hepatitis B Virus Genome in an Integrated State in a Human Hepatoma Cell Line Transfected with the Cloned Viral DNA," <i>Proc. Natl. Acad. Sci. USA</i> , 84:444-448 (January 1987). | |
| | MG | Van DRAANEN <i>et al.</i> , "Influence of Stereochemistry on Antiviral Activities and Resistance Profiles of Dideoxycytidine Nucleosides," <i>Antimicrobial Agents and Chemotherapy</i> , 38(4):868-871 (April 1994). | |
| | MH | VINCE <i>et al.</i> , "Resolution of Racemic Carbovir and Selective Inhibition of Human Immunodeficiency Virus by the (-)Enantiomer," <i>Biochem. and Biophys. Res. Comm.</i> , 168(3):912-915 (May 16, 1990). | |
| | MI | VOLK, Wesley, A., editor, "Hepatitis," <i>Essentials of Medical Microbiology</i> , J.B. Lippincott Company, (Philadelphia/Toronto), 2nd Ed., pp. 609-618 (1982). | |
| | MJ | VORBRUGGEN <i>et al.</i> , "Nucleoside Synthesis with Trimethylsilyl Triflate and Perchlorate as Catalysts," <i>Chem. Ber.</i> , 114:1234-1255 (1981). | |
| | MK | WILSON <i>et al.</i> , "The 5'-Triphosphates of the (1) and (+) Enantiomers of cis-5-Fluoro-1-[2-(Hydroxymethyl)-1,3-Oxathiolane-5-yl]Cytosine Equally Inhibit Human Immunodeficiency Virus Type 1 Reverse Transcriptase," <i>Antimicrob. Agents and Chemother.</i> , 37(8):1720-1722 (August 1993). | |
| | ML | WILSON, L.J., <i>et al.</i> , "A General Method for Controlling Glycosylation Stereochemistry in the Synthesis of 2'-Deoxyribose Nucleosides," <i>Tetrahedron Lett.</i> , 31(13):1815-1818 (1990). | |
| | MM | WILSON, L.J., <i>et al.</i> , "The Synthesis and Anti-HIV Activity of Pyrimidine Dioxlanyl Nucleosides," <i>Bioorganic & Medicinal Chemistry Letters</i> , 3(2):169-174 (1993). | |
| | MN | WORLD HEALTH ORGANIZATION, "Progress in the Control of Viral Hepatitis: Memorandum from a WHO Meeting," <i>Bulletin of the World Health Organization</i> , 66(4):443-455 (1988). | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → ☐

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| | | | | | |
|---|----|----|----|--------------------------|----------------------------|
| Submitted for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT | | | | Complete if Known | |
| | | | | Application Number | 10/759,985 |
| | | | | Filing Date | January 16, 2004 |
| | | | | First Named Inventor | Schinazi <i>et al.</i> |
| | | | | Group Art Unit | 1623 |
| | | | | Examiner Name | Crane, Lawrence E. |
| Sheet | 14 | of | 14 | Attorney Docket Number | 18085.105326 EMU 133 CON 5 |

4742181 1.DOC

| OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS | | | |
|---|-----------------------|--|--------|
| Examiner Initials * | Cite No. ¹ | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T 6 |
| | NA | YOKOTA <i>et al.</i> , "Comparative Activities of Several Nucleoside Analogs Against Duck Hepatitis B Virus In Vitro," <i>Antimicrobial Agents and Chemotherapy</i> , 34(7):1326-1330 (July 1990). | |
| | NB | ZHU, Zhou, <i>et al.</i> , "Cellular Metabolism of 3'-Azido-2',3'-Dideoxyuridine with Formation of 5'-O-Diphosphohexase Derivatives by Previously Unrecognized Metabolic Pathways of 2'-Deoxyuridine Analogs," <i>Molecular Pharmacology</i> , 38::929-938 (1990). | |

| | | | |
|--------------------|--|-----------------|--|
| Examiner Signature | | Date Considered | |
|--------------------|--|-----------------|--|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Unique citation designation number. ² See attached Kinds of U.S. Patent Documents. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.